



Parcel E Groundwater Treatability Study (GWTS) Additional Investigation

**Hunters Point Naval Shipyard
BCT Meeting
August 23, 2012**

Contract Number N62473-10-D-409, CTO 0006



Overview



- Completed field activities for the original scope of the GWTS in Parcel E
 - VOC Plume Characterization work at IR04, IR12, IR36, IR56
 - ZVI injections in IR12A and IR36 (Building 406) Plumes and post-injection sampling
- The final GWTS technical report was submitted in May 2011
- Additional investigation to evaluate potential vadose-zone sources of TCE is underway at IR04 and IR36 in areas where TCE greater than 15,000 micrograms per cubic meter was detected in soil gas overlying groundwater with low (20 micrograms per liter) or non detected TCE concentrations.



Parcel E and Work Area Locations at R04 and IR36

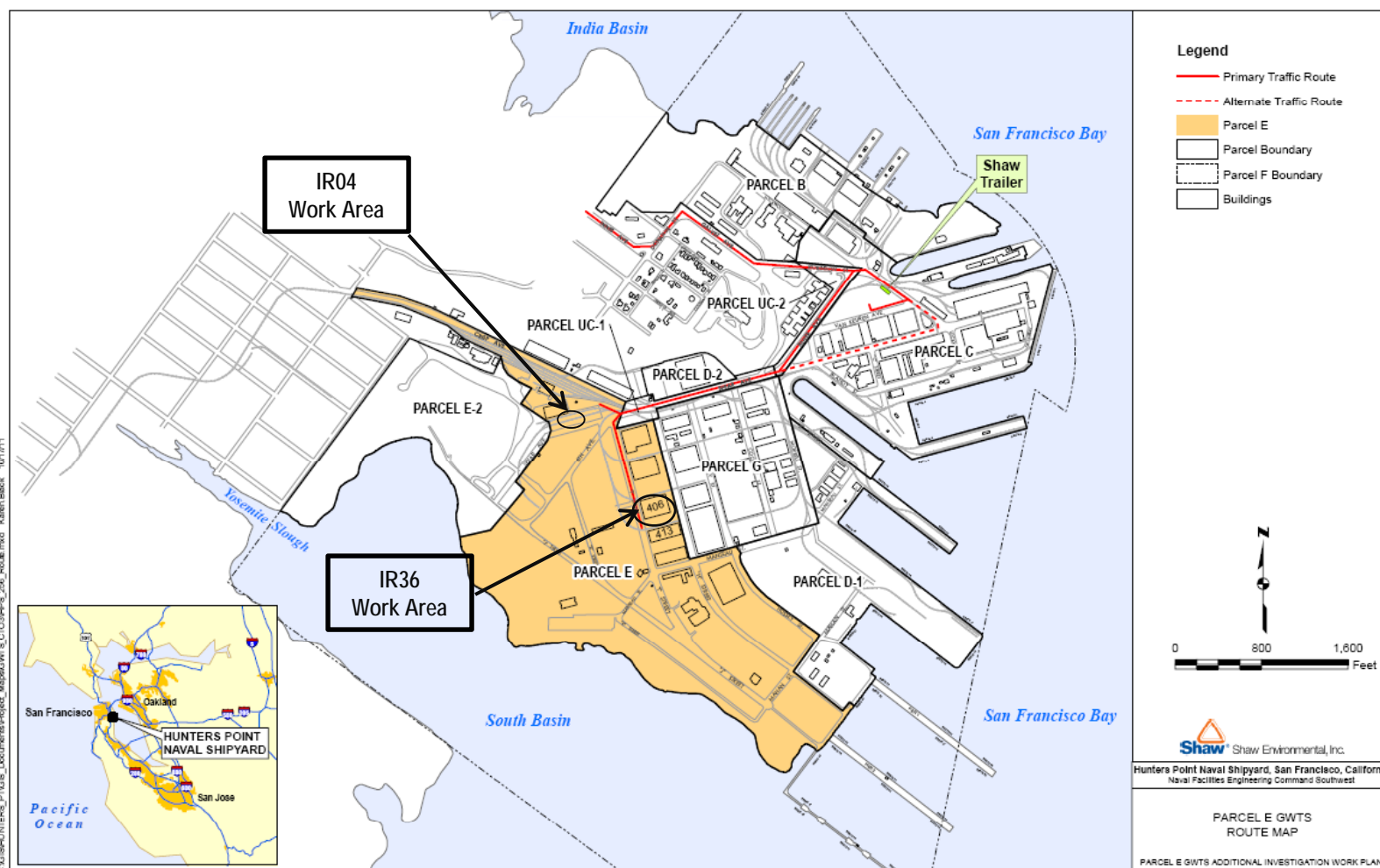
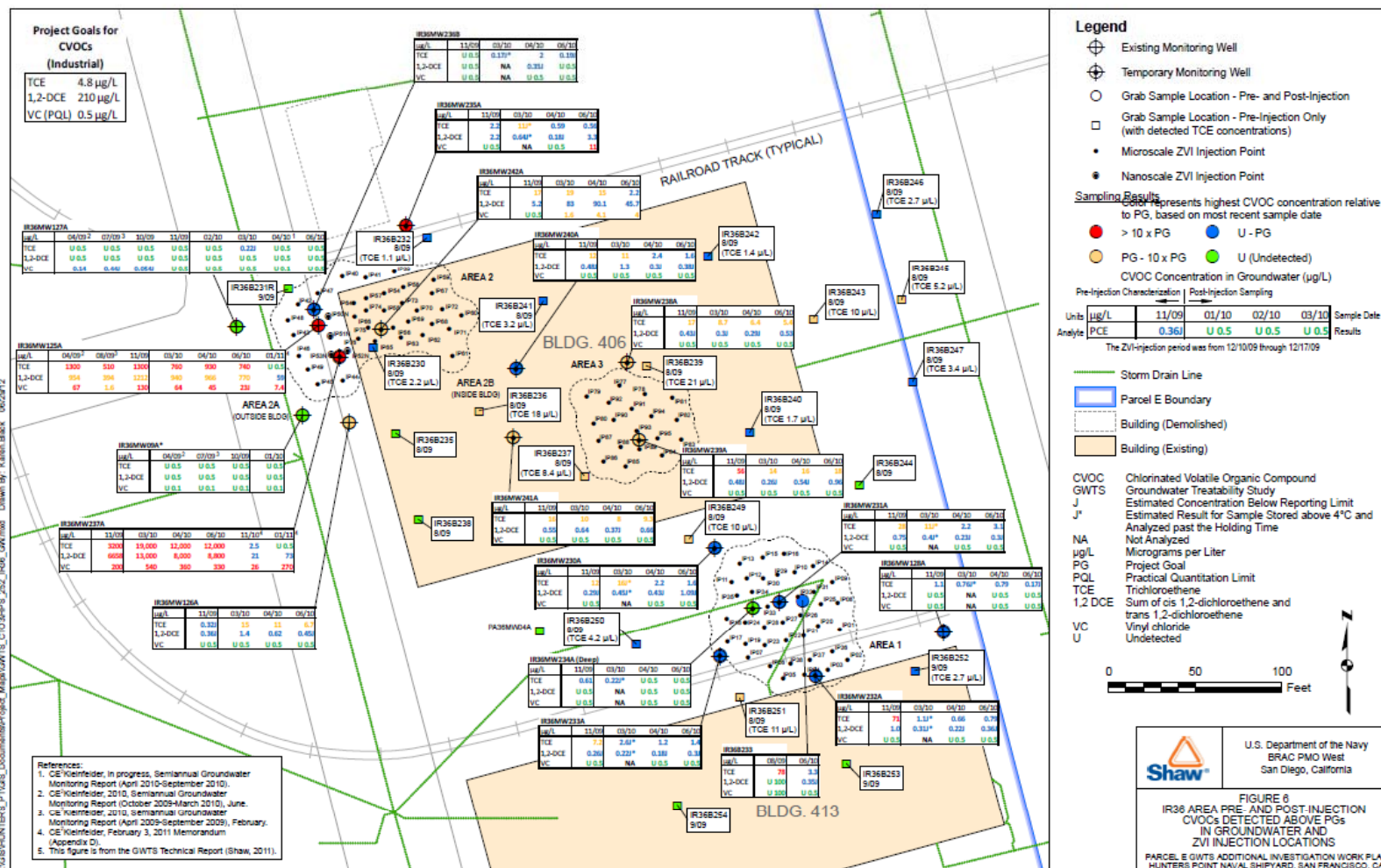


Figure 1



IR36 ZVI Injection Locations and Groundwater Analytical Data





Overview - Continued



- The additional investigation includes the following:
 - Soil gas sampling to confirm current conditions (completed July 2012).
 - Membrane interface probe (MIP) borings to obtain semi-quantitative data on CVOC concentrations in the subsurface and soil text.
 - Soil borings to collect soil and groundwater grab samples for laboratory analysis from the depths where the highest relative CVOC concentrations were indicated on the electron capture detector (ECD) of the MIP.
 - Sampling will be conducted on a grid system similar to the pre ZVI injection sampling during the GWTS, but using a closer (25') spacing.
- Data from the MIP borings completed through 8/17/12 are under review.
- Borings for obtaining soil and groundwater grab samples for laboratory analysis is scheduled to begin 8/27/12.



IR04 Area – Soil Gas Results and MIP ECD Results

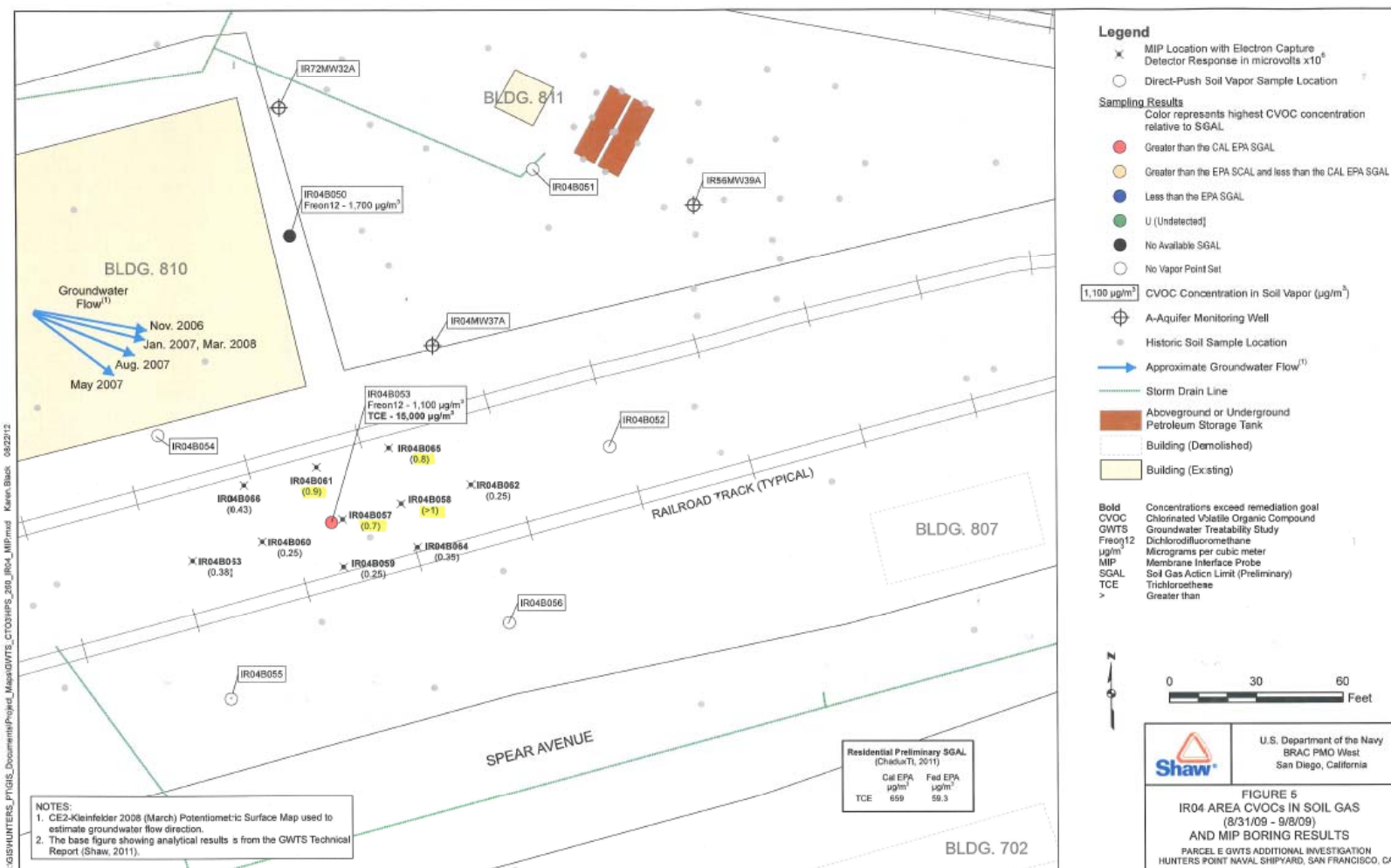


Figure 2



Summary of IR04 Results



- A soil gas sample was not collected from IR04B053 in July 2012 due to shallow groundwater conditions (water was entrained in the sample).
- MIP borings were completed at all planned locations plus three step out locations.
- The highest ECD response was observed at IR04B058 (located 25 feet east of the soil gas monitoring point).
- The highest ECD responses were generally observed in the 3 to 6 feet below ground surface (bgs) range in the MIP borings.



IR36 GWTS Area Soil Gas Data and MIP ECD Results

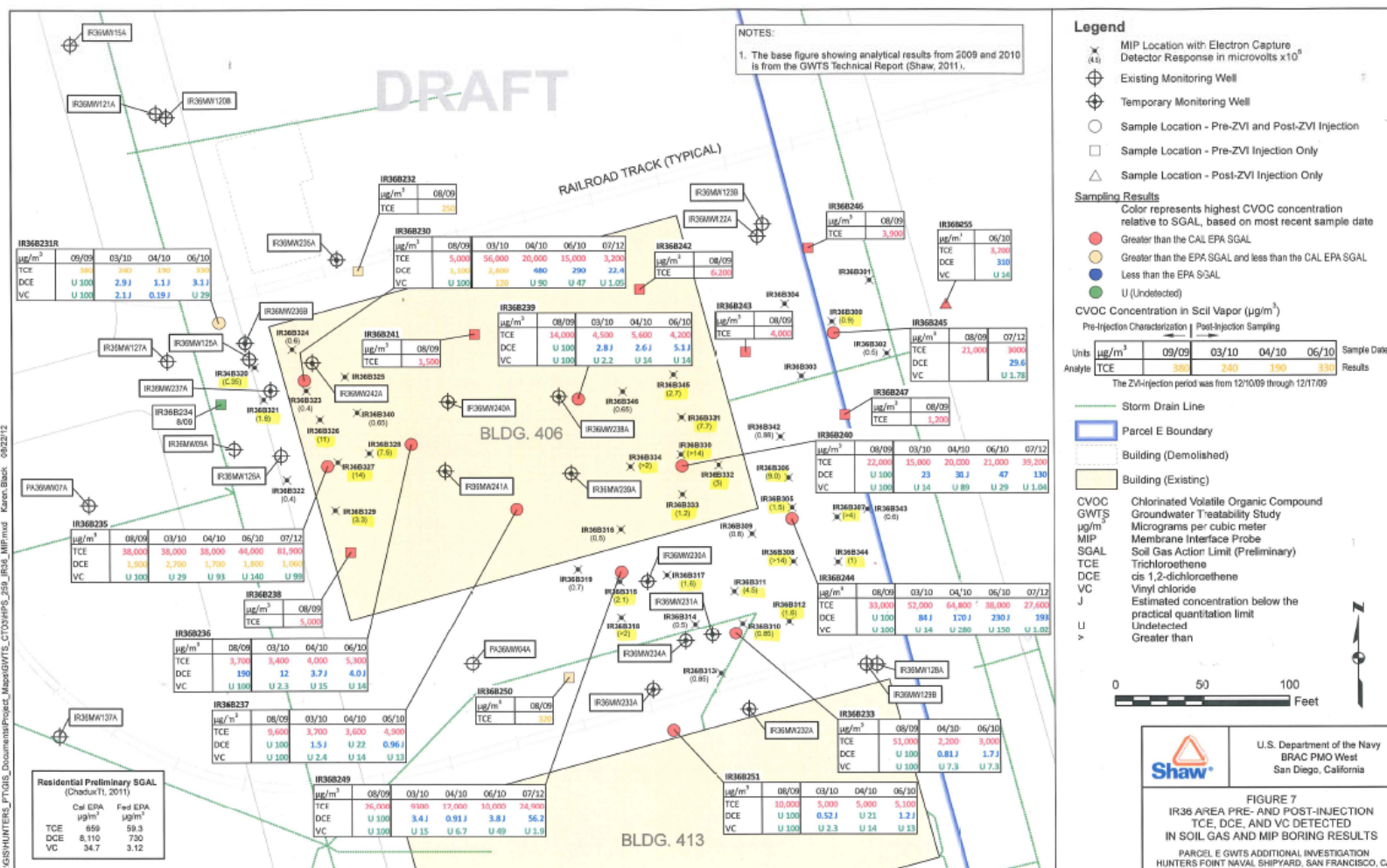


Figure 3

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Summary of IR36 Results



- Soil gas samples were collected from all but one planned location. Soil gas sampling point IR36B233 (between Building 406 and 413) could not be located.
- TCE concentrations reported in the July 2012 soil gas samples generally were in the range of concentrations reported in the July 2010 samples (with two exceptions noted below).
- TCE concentrations in the soil gas samples from IR36B230 (inside the northwest corner of Building 406) and IR36B245 (outside the east wall of Building 406) were reported to be less than 6,000 micrograms per cubic meter.



Summary of IR36 Results - Continued



- MIP borings were completed at all but four planned locations and at six step out locations. MIP borings were not conducted at planned location IR36B325 (located inside the northwest corner of Building 406) and locations IR36B301, IR36B303, and IR36B304 (located outside the east wall of Building 406) due to low TCE concentrations in soil vapor.
- The highest ECD responses were observed at IR36B327 (located inside the west wall of Building 406), IR36B330 (located inside the southeast corner of Building 406) and IR36B308 (located outside the southeast corner of Building 406). The highest ECD response was generally observed between 3 and 5 feet bgs at each location.



Next Steps



- Data Evaluation
 - Using the ECD data from the MIP borings, select the locations and depth intervals for obtaining soil and groundwater grab samples for laboratory analysis.
 - The electrical conductivity log from the MIP will be used to identify the relative soil texture (fine grained or coarse grained) corresponding to the highest ECD reading that will be sampled for laboratory analysis.
- Field Sampling
 - Advance up to 28 direct-push borings to collect soil and groundwater grab samples for laboratory analysis to quantify the CVOC concentrations in soil and groundwater. These data will be used to identify the source of the CVOC concentrations observed in soil gas.



Schedule Summary



- Kick-Off Meeting for Additional Work (complete) Sept. 19, 2011
- Work Plan (Addendum) Final (complete) July 9, 2012
- Sample Existing Soil Gas Monitoring Wells (Complete) July 13, 2012
- MIP Borings (Complete) August 17, 2012
- Drill and Sample Soil Borings August 27, 2012
- Draft Technical Report Addendum to BCT November 2012
- Final Technical Report Addendum to BCT February 2013



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